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SEXUALITY AS AN INDEPENDENT VARIABLE: THE CONTRIBUTION TO (OR PROTECTION AGAINST) CHRONIC DISEASE

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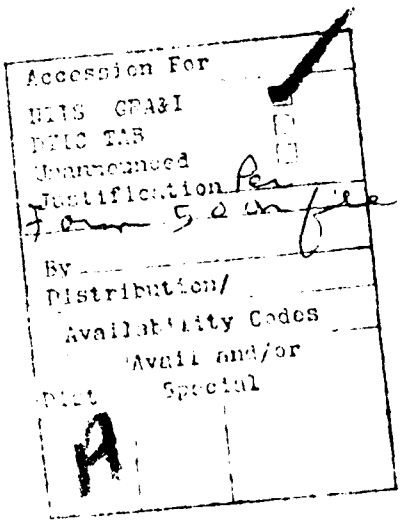
SEXUALITY AS AN INDEPENDENT VARIABLE:

THE CONTRIBUTION TO (OR PROTECTION AGAINST) CHRONIC DISEASE

Abstract

It is a plausible notion that sexual activity contributes to health outcome in a manner beyond merely serving as a mode for transmission of infectious agents. Professional speculation by medical practitioners supports such a notion but next to nothing is known about what sexual pattern leads to what health outcome. As a result, clinicians have little basis from which to render sound guidance on matters having to do with sexuality, and the disciplines of preventive medicine and preventive psychiatry are unable to educate accurately the public on how to adjust or expand sexual practices in order to promote health and ward off chronic disease. To achieve scientific understanding of the relationship, a long-term epidemiologic cohort study that would array the distribution of sexual activity against the distribution of health outcome is suggested.



The purpose of this review is to sensitize the reader to a proposed relationship that is commonly neglected in epidemiological investigations of chronic disease. Medical science has come to indict a long list of risk factors in disabling and fatal diseases: dietary intake, physical exercise activities, food chain pollutants, atmospheric contaminants, psychosocial stressors, life-event happenings, personality types, cultural characteristics, pastimes, and lifestyles. Yet, in our best Victorian manner, we have all but ignored the health-illness consequences of one of man's most biologically pervasive preoccupations: sexual desire with its accompanying frustrations and fulfillments. It is contended here that (a) there is a linkage between sexuality and risk of (or protection against) ensuing morbidity and mortality; and (b) the scientific ascertainment of this linkage between sexuality and health outcomes is impeded by cultural and technical constraints.

Sexuality is an imprecise term. Here it is restricted to its psychobiological aspects. Concern over its sociocultural aspects (e.g., gender stereotyping and sex role enactment) is postponed. The present discussion references sexuality as those mentations, impulses, sensations, behaviors, and physiological happenings coincident with the instrumental acts of sexual stimulation, excitation, and expression.

The contribution of sexuality to disease occurrence is known only in the case of infectious venereal disease, where an identifiable microorganism, capable of enlisting pathophysiological sequelae, is transmitted from one person to another during the performance of sexual activity of one sort

or another. In the wide array of chronic (non-venereal) diseases, both psychiatric and medical, the part played by sexual habits and histories in contributing to disease risk, while widely assumed by practicing physicians to be of importance (Pinderhughes, Grace, & Reyna, 1972; Pinderhughes, Grace, Reyna, & Anderson, 1972), has received almost no research attention. (Work on genital cancer is a notable exception and is discussed later).

There is considerable plausibility to the idea that sexuality may be a precursor also in diseases which do not depend upon venereal transmission of an infectious agent. The Freudian theory of psychopathology (e.g., Freud, 1935) invokes repressed sexuality as a forerunner of psychoneurosis. Sexual stimulation and orgasm are accompanied by acute, dramatic changes on several physiological fronts: heart rate, blood pressure, and respiratory rate (Klumbies & Kleinsorge, 1950; Bartlett, 1956; Fox & Fox, 1969; Littler, Honour, & Sleight, 1974); perspiratory reaction, vasocongestion, and myotonia (Masters & Johnson, 1966); and endocrine secretion (Young, 1961; Carter, 1974). The exquisitely pleasurable sensations in the sexual experience are widely known, presumably have short-term (emotional and perceptual) and long-term (memory and fantasy) consequences, and thus presumably register effects in both the autonomic and central nervous systems. Mosovich and Tallafero (1954) noted EEG changes during orgasm.

While there is, then, some scientific documentation of the physiological concomitants of human sexual behavior, such documentation represents only a

crude beginning. At the recent Stony Brook Conference on the Future of Sex Research (1975), the following conclusion was reached: " . . . almost nothing is known of the neurological and biochemical antecedents of orgasm in either the human female or the human male. What little we do know is expressed in such gross and inadequate terms as muscle tensing and blood vessel engorgement, typical nineteenth-century concepts. Until we know at least as much about sexual functioning as we know about gallbladder functioning or auditory functioning, we must stagger about in the dark when designing problem-oriented research projects" (p. 481).

Alongside our ignorance, however, there is evidence that at least the following body systems are immediately involved in each and every human sexual act: genitourinary, cardiovascular, respiratory, endocrine, musculoskeletal, autonomic nervous system, and central nervous system. Surely if sexuality impacts physiologically upon these body systems, then particular patterns of sexuality may affect pathophysiologically these same body systems. What are those sexual patterns that place one at increased risk, or that protect one from symptom onset?

To explore what is already known in this area, the literature was searched for studies relating sexual behavior to (non-venereal) disease occurrence. Encountered was a massive literature on sexuality. Psychiatric writings were found to be concerned largely with sexual pathology and its antecedents. When disease was linked with sexual functioning in the medical literature, the independent-dependent variable relationship was usually reversed from the consideration proposed here. That is, many studies were found wherein given the presence of disease, the extent of

sexual (dys)functioning is described (e.g., Kolodny, 1971; Winokur & Leonard, 1963); such studies bear little relevance to this paper's thesis.

Psychiatric Disease

From their assessment of the problem, Pinderhughes, Grace, and Reyna (1972) concluded " . . . there is no reliable, organized body of knowledge that indicates the degree to which or the circumstances in which sexual functioning may contribute to the development of psychiatric disorders . . ." (p. 1281).

The works by Kinsey et al. (1948, 1953) present data on the epidemiology of sexuality, but no attempt was made to relate sexual outlet sources or frequencies to psychiatric or medical disease incidence. Loosely modeling his methodology after Kinsey, Hunt (1974) surveyed 2026 persons on a non-random basis and concluded that a shift toward liberalism in sexual attitude and sexual behavior had occurred since Kinsey's samples had been drawn. Again, however, there was no attempt made to relate sexual epidemiology to psychiatric epidemiology.

During the ninetheenth century and well into the twentieth, a rather common belief, apparently held by physician and layman alike, was that masturbation caused not only insanity but the debilitating diseases as well (Gilbert, 1975). As sex surveys began to show that masturbation was extremely prevalent, this belief seems to have lost any kind of scientific or professional respectability. Indeed, perhaps the overthrowing of the masturbation-insanity myth caused to be dismissed any notion that sexual activity ought be studied as a possible precursor of psychiatric disease.

At least that has been what has happened. There are no published

investigations that have directly studied psychiatric disease as a function of sexual behavior. The psychiatry textbook edited by Freedman et al. (1975) devotes 259 pages to "normal and abnormal human sexuality" yet no discussion and no cited source studies can be found on the question of sexual behavior as a risk factor (or a protector) in psychiatric illness. Perhaps Havelock Ellis (1936, 1939) has indeed succeeded in placing sexuality above reproach.

In one article (Leviton, 1973), lack of sexual activity is speculated as increasing the risk of suicide in the aging. Fink (1969) asserts that incomplete sexual expression may have untoward health consequences: "The vasocongestive reaction that is not dissipated through orgasm may lead to feelings of irritability, discomfort, emotional upset, insomnia, backaches, and other very common medical and emotional complaints" (p. 6). There has been some work on a rating scale which is alleged to yield an index of pre-morbid sexual adjustment in schizophrenia (Harris, 1975). The Winokur and Leonard (1963) study merely describes the sexuality status of patients with hysteria. When it comes to locating actual data-related, observational studies on the question of the relationship between sexual activity and ensuing psychiatric disease, the psychiatric literature is a barren wasteland. Sexual behavior as a precursor of (or protector for) such prevalent maladies as depression, alcoholism, drug abuse, and the so-called psychosomatic illnesses, many of which are presumably endocrine-mediated, has apparently not been studied at all.

Medical Disease

At the height of an episode of sexual activity in the human, the heart rate more than doubles (to 160-180 beats per minute), systolic blood pressure rises 60 to 80 mm Hg above resting pressure, and diastolic pressure rises 30 to 40 mm Hg above resting pressure (Labby, 1975). These facts alone would seem to make cardiovascular diseases and hypertension likely candidates for disease consequences of sexuality. Yet in comprehensive reviews by Epstein (1965), which included 315 references, and by Schweitzer et al. (1965), which included 47 references, sexuality was not among the list of possible precursors studied in coronary heart disease (serum cholesterol, blood pressure, tryglycerides, cigarette smoking, coffee drinking, lipid levels, obesity, hormone patterns, water hardness, and diet) nor among the list of precursors implicated in hypertension (salt intake, obesity, psychosocial factors, biochemical variables). One might also question the wisdom of omitting the tracking of sexual behavior in Framingham (Kannel & Gordon, 1968).

While Labby (1975) asserts that sexual functioning can be expected to be influenced by the presence of cardiovascular disease, hypertension, pulmonary disease, renal disease, diabetes mellitus, pelvic disease, and surgery, no allegation is made that behavior in the sexual sphere may contribute to the onset of these conditions. Yet the physicians and the patients surveyed by Pinderhughes, Grace, Reyna, and Anderson (1972) attributed causal significance to sexuality in a variety of medical conditions: "Staff and consulting physicians reported that sexual activity

could have been a contributing factor for 37 per cent of the medical conditions listed. Somewhat fewer patients, 23 per cent, thought sexual activity might have contributed to their illness" (p. 67).

Curiously, one retrospective study, conducted in Japan, points a finger at sexuality as a precipitating factor in mortality. Ueno (1963) studied 5559 cases of endogenous sudden death and found that six-tenths of one per cent of these deaths, or 34, were attributable to the sex act (31 to copulation, three to masturbation). Ueno concluded: "These coition deaths are generally resultant from potential basic diseases loaded with the physiological excitation and consumption of sexual intercourse" (p. 334).

Genital Disease

There is one success story to tell in the epidemiology of chronic disease vis-a-vis sexuality as an implicated precursor. In the early 1950's it was noted that nuns were spared from cancer of the cervix of the uterus (Gagnon, 1950) while prostitutes were overly afflicted with this disease (Rojel, 1953). The notion was entertained that stress on the cervix during pregnancy and delivery may contribute to increased risk. Also hypothesized as a specific carcinogenic factor was the arsenic compound used to treat syphilis.

In the next two decades many studies were conducted which explored the relationship between sexual variables (marital status, circumcision status of partner, number of partners, contraceptive practices, number of births, age at first intercourse, etc.) and incidence of cervical cancer (e.g., Martin, 1967; Rotkin, 1967; Rent et al., 1972; Berget, 1975).

Evidence mounted that the greater the variation in sexual partnership, the higher the risk in contracting cervical cancer.

Then Kessler (1976) formally submitted the hypothesis that herpes simplex virus type 2 is the etiologic agent in cervical cancer and that the virus is venereally transmitted from a reservoir of infected males to those female hosts made receptive by a particular steroid hormone balance.

A similar epidemiological search has occurred in the area of prostatic cancer. Quisenberry (1960) suggested that the 9 to 1 ratio of prostate cancer in Caucasians to Japanese was perhaps related to the fact that the Japanese did not start something in the way of love-making that they were not prepared to finish, thus preventing frustration of glandular mechanisms and avoiding engorgement and vasocongestion. Steele et al. (1971) related prostate cancer incidence to inferred sexual desire and interest, but raised the possibility that sexual activity itself may be prophylactic by reducing androgen levels in the blood. Krain (1973) and Higgins (1975) found that coital frequency and number of sexual partners increased the risk of prostate cancer. However, Armenian et al. (1975) found that prostatic cancer occurrence was related to fertility rather than to sexual interest or promiscuity. A recent review of the literature on cancer of the prostate (Owen, 1976) produces a much cloudier picture than in cervical cancer although venereal virus and hormonal makeup of the host again receive prominent consideration as etiological factors.

Suggested Work

The above argument is proffered as rationalization for the instigation of a program of research into sexuality and chronic disease. The objective would be to identify and to delineate the extent to which patterns of sexual activity are risk factors (or protectors) in the major chronic diseases of our time, such as mental illness, cardiovascular disease, cancer, diabetes, rheumatoid arthritis, peptic ulcer--to name a few. A parallel objective would be to test the idea that patterns of sexual activity increase vulnerability to disease in general and to premature mortality. There exist significant social constraints and technical problems to impede the development of any such program. These barriers need to be recognized, dealt with, and overcome where possible.

Sexuality is a highly charged issue--socially and politically, as well as biologically. This is because in significant measure members of our culture assign core valuations (i.e., attributions of personal worth) to themselves and to others on the basis of what is done and what is not done sexually. Consequently, the scientific study of sexual activities and behavior is compromised, and the basic observational data come filtered through feelings of guilt, shame, fear, blame, pride, and humor. Indeed, formal institutional sanctions are sometimes proposed to prevent inquiry entirely.

These cultural insistences have in the past exerted profound influence on how sexuality has been regarded in matters of health and illness. For example, particular sexual practices, such as onanism, have received blanket condemnation as health scourges. Provisional license to investigate

sexual activities is issued to the medical scientist, the proviso being that the genitalia themselves must be pathophysiologically invaded before study is permitted--as in the case of venereal disease or genital cancer. Within the medical sub-culture itself, the study of sexuality is not the surest way to win the respect and esteem of one's peers.

These constrictions are most unfortunate for society's ultimate understanding of the chronic disease processes since one is hard put to consider a recurring biological function having any greater psychological and physiological impact than the human sexual experience. While we cannot immediately change long-entrenched cultural taboos and strictures, we can attempt to show prospective participants and patrons that for the common good our license as investigators of sexuality and its concomitants need be extrapolated.

The initial technical problem to be faced lies in conceptualizing workable operational definitions for the independent (sexuality) and dependent (disease) variables so that measurements can be performed reliably across participants and between cohorts. As suggested earlier in this paper, it is strategically best to operationalize sexuality as those acts which can be noted as sexually excitatory and sexually expressive in nature. Unless sexuality is bounded finitely in psychobiological acts clearly delimited in time and space, the concept merges into all-encompassing constructs such as role, lifestyle, or personality, and loses its unique identifiability as a studiable risk factor. Operational criteria for the specific diseases to be observed will need to be certified. In addition a criterion for disease vulnerability in general will need to be conceptualized.

Capturing ongoing sexuality data from participants can utilize some of the techniques developed in the health diary method (Roghmann & Haggerty, 1972). A cumulative "sex experience log" may be feasible for collecting and recording data on a daily basis. Preliminary tinkering with such an instrument produced a format which was controlled by sequence number, hour, and date for each sex experience, accompanied by check-mark entries under the following headings: sex of partner; partner's relationship to participant (spouse, other relative, fiancee, friend, acquaintance, stranger, no partner); main parts of body employed by participant and by partner to effect sexual excitation (hand/finger, breast, mouth/tongue, clitoris/vagina, penis, anus/rectum, other); number of orgasms experienced by participant and by partner; hygienic measures taken by participant and by partner (washing/cleansing, condom, topical medication, systemic medication, none); contraceptive measures taken by participant and by partner (condom, diaphragm, douche, IUD, pill, rhythm, interruptus, other, none); money exchange (participant paid partner, partner paid participant, no exchange); place (participant's abode, partner's abode, other's abode, hotel/motel, in vehicle, out-of-doors, other); affective accompaniment for participant and for partner (enjoyment, satisfaction, love/warmth, aggression/anger, guilt/shame, don't know); circumcision status, if male; comment. Pertinent demographic data would be collected initially and updated periodically.

Recording data in the log may present less of a problem to a participant than concealment of the information once it is recorded. Where would the participant keep the record to insure that significant others would not

encounter the document? A further problem is the possible effect of recording one's own behavior upon the behavior itself. This is perhaps a greater problem with respect to establishing accurate sexuality norms than it is in relating frequency and pattern of sexuality to illness occurrence. Issuance to the participants of individual electronic devices designed to code and store the data on small magnetic tape cartridges which could be mailed weekly or bi-weekly to the investigators may solve the data concealment problem and may reduce the amount of participant-reactivity to the recorded behavior. Such a medium for data recording and storage would be particularly useful in the behavioral sciences if entries could be retrieved by the participant for only a brief period, say 24 hours, yet decodable by the investigators for an indefinite period.

The prolonged duration (years merging into decades) of the necessary observation period presents obvious difficulties in maintaining participant cooperation and compliance. It may well be that sexuality measures could survive best in a research effort which obtained measurements on a number of other physiological and behavioral variables thus ensuring periodic contact between investigators and participants, as well as maximizing the possible scientific gains. However, caution must be exercised not to overload the participants. Issuance of a term life insurance policy with waiver of premium payment so long as study participation continued may be an effective and convenient way to enlist and maintain long-term participation. Life and health insurance companies should be remembered as possible benefactors when soliciting support for the long-range cohort study envisioned here.

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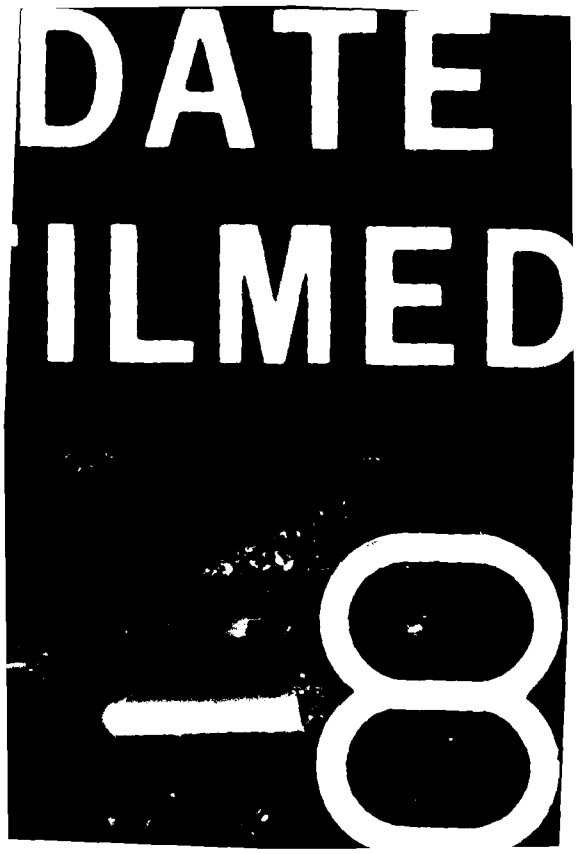
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